AN APPLICATION OF EARTHQUAKE DETECTION OF TIME-FREQUENCY ANALYSIS

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ABSTRACT

The method of STA/LTA is a conventional automatic detection and timing of earthquakes on a single seismic trace. With comparing the amplitudes of signal and noise level, an event is declared when the ratio of STA/LTA exceeds a given threshold; however, the method can't lead to satisfactory results when Signal-to-Noise Ratio has low level.

We consider applying the method of Time-Frequency Analysis to conventional STA/LTA detection. With analysis of the variance of signal in different frequency bands on a single seismic trace, some CF (characteristic function) can be used, then applying to STA/LTA, an event can be declared. It may be a more effective detection method.

Key Words: detection, STA/LTA, CF, time-frequency analysis